IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Rode	**Group Art Unit:**	3683
Serial No.:	10/054,253	**Confirmation No.:**	3708
Filed:	January 22, 2002	**Examiner:**	Xuan Lan T. Nguyen
Title:	ADJUSTABLE DISC SPRING SYSTEMS AND METHODS		

CERTIFICATE OF MAILING

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APPELLANT'S APPEAL BRIEF TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Dear Sir:

This is an appeal under 37 C.F.R. § 1.191 and § 1.192 from a final Office Action dated July 7, 2004, of claims 1-9, 13, 14, 16, 24, 25 and 28-32, comprising all the claims finally rejected. A Combined Notice of Appeal from the Primary Examiner to the Board of Patent Appeals and Interferences & Petition for Extension of Time Under 37 C.F.R. § 1.136(a) was timely filed on December 2, 2002, and received in the U.S. Patent and Trademark Office on December 2, 2002. Therefore, this Brief is timely filed on February 3, 2005, along with a petition

for a one-month extension of time, and the corresponding extension of time fee. The Commissioner is authorized to charge credit any overpayment, or charge any additional fees required to U.S. Deposit Account No. 08-1935.

REAL PARTY IN INTEREST

John E. Rode, the applicant in this patent application, is the real party in interest.

RELATED APPEALS AND INTERFERENCES

To the knowledge of the Appellants, Appellants' undersigned legal representative, and the assignee, there are no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF CLAIMS

Claims 1-32 were originally presented in the subject application. Claims 10-12, 15, 17-23, 26 and 27 have been withdrawn from consideration. No claims have been allowed. Therefore, claims 1-9, 13, 14, 16, 24, 25 and 28-32 remain rejected and are herein being appealed.

STATUS OF AMENDMENTS

An Amendment was filed on September 7, 2004 in response to the Final Office Action of July 7, 2004, which included a claim amendment which added new claim 33, which was not entered.

SUMMARY OF CLAIMED SUBJECT MATTER

In a first aspect of the invention, an adjustable disc spring system (200, FIGS. 3,5, 6; page 7) includes at least one beveled disc spring (230, FIGS. 3, 5, 6; page 7) axially aligned with an adjustable spacer (220, FIGS. 3, 5, 6; page 7). The adjustable spacer is plastically compressible in a substantially axial direction relative to the at least one beveled disc spring to allow an axial adjustment of the adjustable spacer in response to a force placed on the spacer.

In a second aspect of the invention, an adjustable disc spring system (200, FIGS. 3, 5, 6; page 7) includes a plurality of beveled disc spring (230, FIGS. 3, 5, 6; page 7) is axially aligned with an adjustable spacer (220, FIGS. 3, 5, 6; page 7). The adjustable spacer is plastically compressible and is substantially axial direction relative to the plurality of beveled disc springs.

In a third aspect of the invention, a method of adjusting a disc spring system (200, FIGS. 3, 5, 6; page 7) is provided. The method includes axially aligning at least one beveled disc spring (230, FIGS. 3, 5, 6; page 7) with an adjustable spacer (220, FIGS. 3, 5, 6; page 7) and compressing the adjustable spacer in a substantially axial direction relative to the at least one beveled disc spring to plastically deform the spacer.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 16, 24 and 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Teeri (U.S. Patent No. 3,836,195).

2. Claims 1-6, 8, 9, 13, 14 and 28-32 stand rejected under 35 U.S.C. § 103(a) as being obvious over Teeri (U.S. Patent No. 3,836,195) in view of Rode (U.S. Patent No. 4,067,585.

ARGUMENT

1. Rejections Under § 102 Over Teeri:

Claims 16, 24, and 25 are rejected in the Final Office Action under 35 U.S.C. § 102(b) as being anticipated by Teeri (U.S. Patent No. 3,836,195). More specifically, Teeri is alleged to disclose an adjustable disc spring system having a plurality of beveled disc springs axially aligned with an adjustable spacer wherein the spacer is plastically compressible, and the reader is referred to column 2, lines 57-60. Also, the Office Action notes that metal is used as one of the materials for the spacer in Teeri and that metal is compressed both plastically or elastically depending on the amount of force being applied.

Claim 16 of the present application recites an adjustable disc spring system which includes a plurality of beveled disc springs axially aligned with an adjustable spacer which is plastically compressible in a substantially axially direction relative to the plurality of beveled disc springs.

Teeri discloses a spring pillar assembled from Belleville disc springs aligned parallel to one another and connected by binding rings. FIGS. 4 and 6 disclose deflection of the disc springs in a manner such that the binding rings must be rigid. Specifically, the ends of the disc springs which are received in the binding rings are not deflected while the opposite ends thereof are deflected toward one another. Thus, it is evident from the position of the deflected disc springs in these figures (i.e., the disc springs appear deformed but not the binding rings) that the bindings rings must be rigid. The specification of Teeri also discloses that the binding rings may be made of steel plate rings and further that such binding rings may also be made from an elastic material, such as rubber or synthetic rubber *(See col. 2, lines 57-60 as suggested in the Office Action dated February 12, 2003).*

The standard for anticipation is one of strict identity between all the elements of a claim and the disclosure of a single reference. See, e.g., Rockwell International Corp. v. United States, 147 F.3d 1358, 1363, 47 U.S.P.Q.2d 1027, 1031 (Fed. Cir. 1998) ("Anticipation under 35 U.S.C. Section 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention[.]"). Gechter v. Davidson, 116 F.3d 1454, 1457, 43 U.S.P.Q.2d 1030, 1032 (Fed. Cir. 1997) ("Under 35 U.S.C. §102, every limitation of a claim must identically appear in a single prior art reference for it to anticipate the claim."); and Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986) ("It is axiomatic that for prior art to anticipate under §102 it has to meet every element of the claimed invention[.]").

There is no disclosure of the binding rings in Teeri being made of a plastically compressible material, as is recited in claim 16 of the present application. The plastically compressible nature of the spacers recited in claim 16 of the present application allows such spacers to be adjusted or preloaded. More specifically, the spacers may be plastically deformed in a predictable manner which allows them to be adjusted in fine increments to achieve a precise

adjustment. For example, as depicted in FIGS. 9-11 of the present application, the deflection or adjustment of such spacers in combination with various disc spring systems may be predicted based on the force applied. The adjustment or preload of such spacers in the various disc spring systems disclosed allow such disc springs systems to be utilized in applications requiring precise adjustments and spacing of different components, for example, in a bearing assembly. However, there is no disclosure of the binding rings in Teeri being adjustable spacers or that adjustment of such binding rings by a force is desirable. In fact, the binding rings in Teeri are described as being elastic (col. 2, lines 57-60) and depicted as being rigid (FIGS. 4 and 6) but not as being plastically deformable or adjustable. In contrast, the spacers described in the present application are intended to be plastically deformed to particular dimensions to provide a certain spacing, for example, in a bearing assembly. Thus, because an adjustable spacer which is plastically compressible and disc springs axially aligned with such spacers are not identically disclosed in Teeri, claim 16 of the present application cannot be anticipated thereby. Thus, claim 16 is believed to be allowable along claims 24 and 25 depending on claim 16, which are believed to be allowable for the reasons described and for their own additional features.

2. Rejections Under § 103 Over Teeri in View of Rode Under 35 U.S.C. § 103(a):

Claims 1-6, 8, 9, 13, 14, and 28-32 stand rejected under 35 U.S.C. § 103(a) as being obvious over Teeri in view of Rode (U.S. Patent No. 4,067,585). Specifically, Teeri is alleged to disclose the subject matter recited in claim 1 except for a spacer being plastically compressible to allow axial adjustment in response to a force placed on the spacer, which is alleged to be disclosed by Rode.

Claim 1 of the present application recites an adjustable disc spring system which includes at least one beveled disc spring axially aligned with an adjustable spacer. The adjustable spacer is plastically compressible in a substantially axially direction relative to the at least one beveled disc spring to allow an axial adjustment to the adjustable spacer in response to a force placed on the spacer.

As noted above, Teeri discloses a spring pillar assembled from disc springs aligned parallel to one another and connected by binding rings. The springs are elastic while the binding rings are rigid or elastic. Rode discloses a spacer which is deformable in response to a force being placed thereon. The deformation in Rode may be elastic and further may be plastic when it is deformed beyond an elastic limit thereof.

However, there would be no reason for one skilled in the art to combine these references. In particular, Teeri lacks the disclosure of a spacer being plastically compressible to allow axial adjustment in response to a force placed on such spacer according to the Office Action. The Office Action alleges that it would have been obvious for one of ordinary skill in the art to have modified Terri's adjustable disc spring to have included a spacer such as taught by Rode to provide a spacer that can accommodate a multitude of loads. It is further alleged that it would be obvious to use such a spacer which is elastically deformed in a first stage of compression and plastically deformed thereafter such that the spacer would remain rigid. In this manner, a modified spring system of Teeri would be able to accommodate a much wider range of loads as taught by Rode.

Rode teaches an adjustable spacer which may be plastically deformed to particular dimensions as noted above, but, Teeri does not disclose the desirability of permanently or plastically deforming any portion thereof nor the desirability of combining an adjustable spacer therewith. Instead, there is no disclosure in Teeri of the desirability of achieving the goals outlined in the Office Action as a rationale for combining these references. The mere existence of the Rode spacer does not provide a rationale for combining it with the spring pillar system in Teeri. This neglects the specific teachings of Teeri and the requirement to consider a reference as a whole, including portions which argue against obviousness. Baush & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 230 U.S.P.Q. 416, 420 (Fed. Cir. 1986), 796 F.2d 443,450.

Teeri discloses conical disc springs being connected by binding rings and specifically discloses that they may be elastic or rigid and that the disc spring pillar is characterized in that it works as both a pressure spring and a tension spring (e.g., it can be loaded in both directions) as described in column 1, but there is no explicit disclosure of the desirability of plastically

deforming the binding rings to adjust them. Further, Teeri describes a dynamic load capacity of the springs utilized therein. In contrast, Rode discloses a spacer which is deformed to create a predetermined load on a part which it is desired to maintain under a predetermined constant load as described, for example, in the Abstract. The predetermined constant load as described in Rode teaches away from the dynamic use of the spring pillar such that it may work as both a pressure spring and a tension spring as disclosed in Teeri. It is improper to combine references where the references teach away from such a combination. M.P.E.P. § 2145, In re Grasselli, 218 USPQ 769, 779 (Fed. Cir. 1993), W.L. Gore, 220 USPQ 303, 311 (Fed. Cir. 1983).

There would be no reason to combine a spacer which is utilized to maintain a predetermined constant load with a spring pillar which acts as both a pressure spring and a tension spring and which receives a dynamic load. In particular, one would not look to a spacer as in Rode to accomplish the purpose stated in Teeri, nor is there any reason or indication to believe that such a combination would satisfy the purposes of Teeri. Moreover, there is no portion of Teeri which is cited as suggesting a combination with Rode, and instead it is only with hindsight acknowledgement of applicant's invention that these references have been selected and combined in an attempt to support an obviousness rejection of claim 1. Such a teaching or incentive in the prior art is necessary to allow such a combination. In re Fine, 5 USPQ2d 1599. Further, hindsight reconstruction of applicant's claimed invention is improper. The claims cannot be utilized as a framework from which to pick and choose among references to recreate a claimed invention. *Id.* at 1600; W.L. Gore, 220 USPQ at 312.

Further, if Teeri was combined with Rode as alleged, the combination would be unsatisfactory for the intended purposes of Teeri. Inoperability for the intended purpose of a device teaches away from the combination of references which would result therefrom. In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984). For example, col. 1, lines 42-45 and lines 59-65 disclose that the disc spring pillar assembly in Teeri works as both a pressure spring and a tension spring. In particular, Teeri describes the binding rings as being rigid or elastic and the disc springs as being elastic, but not the disc springs or the bindings rings being plastically compressible. As noted, the Office Action alleges that it would have been obvious to have modified Teeri's method of adjusting a disc spring system to include a step of plastically

compressing a spacer as taught by Rode to achieve a constant desired load from the spacer after the compression in order to be able to use one type of spring system for a wide range of loads instead of having to change out a metal spacer for an elastic spacer or vice versa. However, if the spacer of Rode were to be incorporated into Teeri and the adjustable spacer was plastically compressed to allow an axial adjustment to the spacer in response to a force placed on the spacer, there is no reason from a review of Rode to believe the resulting device would work as a pressure spring and a tension spring as is described in Terri. In particular, Rode merely describes the use of the spacer described therein as being useful to create a predetermined load on a part which is desired to maintain a predetermined constant load, but there is no reason to believe that the spacer would provide any desired properties in a situation where it was under both a pressure force and a tension force. Accordingly, there would be no reason for one skilled in the art to combine Teeri and Rode because the derived system would not satisfy the purposes of Teeri.

Thus, because there is no suggestion or motivation for combining Teeri and Rode, and such a combination would make Teeri unsatisfactory for its intended purpose, claim 1 cannot be obvious over these references. The dependent claims are believed not to be obvious for the same reasons and for their own additional features. Accordingly, claim 1 and the claims depending thereon are believed to be allowable.

CONCLUSION

In conclusion, Applicant submits that claims 1-9, 13, 14, 16, 24, 25 and 28-32 satisfy 35 U.S.C. § 112, first paragraph.

Accordingly, it is respectfully submitted that these references can not make the claims of the present application obvious. Therefore, Appellant submits that the Final Office Action should be reversed in all respects.

Respectfully submitted,

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APPENDIX

Claims:

Listing of Claims:

1. ***(Previously Presented)*** An adjustable disc spring system comprising:

at least one beveled disc spring axially aligned with an adjustable spacer;

wherein said adjustable spacer is plastically compressible in a substantially axial direction relative to said at least one beveled disc spring to allow an axial adjustment of said adjustable spacer in response to a force placed on said spacer.

2. ***(Original)*** The system of claim 1 wherein said adjustable spacer comprises at least one entrapping flange to receive said at least one beveled disc spring.

3. ***(Original)*** The system of claim 2 wherein said at least one entrapping flange comprises at least one curved surface concave to said at least one beveled of disc spring.

4. ***(Original)*** The system of claim 3 wherein said spacer comprises at least one curved compressible portion between said at least one entrapping flange.

5. ***(Original)*** The system of claim 2 wherein said at least one beveled disc spring comprises an offset for receiving said at least one entrapping flange.

6. ***(Original)*** The system of claim 5 wherein said offset comprises a tapered portion of said at least one beveled disc spring toward said at least one entrapping flange.

7. ***(Original)*** The system of claim 1 wherein said at least one beveled disc spring comprises an axially protruding tip.

8. ***(Original)*** The system of claim 1 wherein said at least one beveled disc spring comprises a conical shaped disc.

9. ***(Original)*** The system of claim 1 wherein said at least one beveled disc spring comprises a Belleville washer.

10. ***(Withdrawn)*** The system of claim 1 wherein said at least one beveled disc spring comprises a straight radial extension for receiving a radially interior force.

11. ***(Withdrawn)*** The system of claim 10 wherein said straight radial extension is substantially parallel to a second straight radial extension of a second beveled disc spring.

12. ***(Withdrawn)*** The system of claim 1 wherein said at least one beveled disc spring further comprises a deflection limiting stop to inhibit an end of said adjustable spacer from moving radially past said deflection limiting stop.

13. ***(Original)*** The system of claim 1 wherein said at least one beveled disc spring comprises a proximal end connected to said adjustable spacer and a distal end adapted to engage a surface.

14. ***(Original)*** The system of claim 13 wherein said distal end is adapted to seal with said surface.

15. ***(Withdrawn)*** The system of claim 1 further comprising a connecting member for connecting said at least one beveled disc spring to a second beveled disc spring wherein a proximal end of said at least one beveled disc spring is connected to said adjustable spacer and a distal end of at least one beveled disc spring is connected to said second beveled disc spring via said connecting member.

16. ***(Previously Presented)*** An adjustable spring system comprising:

a plurality of beveled disc springs axially aligned with an adjustable spacer;

wherein said adjustable spacer is plastically compressible in a substantially axial direction relative to said plurality of beveled disc springs.

17. ***(Canceled)*** ~~The system of claim 15 wherein said adjustable spacer comprises a plurality of entrapping flanger to receive said plurality of beveled disc springs.~~

18. ***(Withdrawn)*** The system of claim 16 further comprising connecting member for connecting at least one beveled disc spring of said plurality of beveled disc springs to a second beveled disc spring of a second plurality of beveled disc springs wherein a proximal end of said at least one beveled disc spring is connected to said adjustable spacer and a distal end of said at least one beveled disc spring opposite said spacer is connected to said second beveled disc spring via said connecting member.

19. ***(Withdrawn)*** The system of claim 18 wherein said connecting member comprises a curved connector having an opening for receiving said at least one beveled disc spring and said second beveled disc spring.

20. ***(Withdrawn)*** The system of claim 18 wherein said connecting member comprises a connecting washer.

21. ***(Withdrawn)*** The system of claim 20 wherein said connecting washer comprises a connecting disc spring having a plurality of receiving ports to receive a plurality of disc springs to operatively connect said plurality of disc springs to each other.

22. ***(Withdrawn)*** The system of claim 21 wherein said plurality of receiving ports are adapted to inhibit movement of said plurality of disc springs in an axial direction.

23. ***(Withdrawn)*** The system of claim 16 wherein at least one beveled disc spring of said plurality of beveled disc springs is connected on a first end to a second beveled disc spring of a second plurality of beveled disc springs via said adjustable spacer and said at least one beveled disc spring is connected on a second end to a third beveled disc spring via a second adjustable spacer.

24. ***(Original)*** The system of claim 16 wherein said plurality of beveled disc springs comprises a plurality of proximal ends connected to said adjustable spacer and a plurality of distal ends adapted to engage a surface.

25. ***(Original)*** The system of claim 24 wherein said plurality of distal ends are adapted to seal with said surface.

26. ***(Withdrawn)*** The system of claim 16 wherein at least one beveled disc spring of said plurality of disc springs is adapted to engage a second beveled disc spring of a second plurality of beveled disc springs.

27. ***(Withdrawn)*** The system of claim 26 wherein said at least one beveled disc spring comprises a lip for receiving said second beveled disc spring.

28. ***(Original)*** The system of claim 16 wherein said plurality of beveled disc springs comprises a plurality of Belleville washers.

29. ***(Previously Presented)*** A method of adjusting a disc spring system comprising:

axially aligning at least one beveled disc spring with an adjustable spacer; and

compressing the adjustable spacer in a substantially axial direction relative to said at least one beveled disc spring to plastically deform the spacer.

30. ***(Original)*** The method of claim 29 further comprising inserting the at least one beveled disc spring into at least one entrapping flange of the adjustable spacer.

31. ***(Original)*** The method of claim 29 wherein the compressing the adjustable spacer comprises placing an axial force on the at least one beveled disc spring

32. ***(Original)*** The method of claim 29 wherein the at least one beveled disc spring comprises at least one Belleville washer.